Title:

DEVICE AND METHOD TO REDUCE WORDLINE RC TIME CONSTANT IN SEMICONDUCTOR MEMORY DEVICES

REMARKS

This responds to the Office Action mailed on May 21, 2004.

Claims 1, 5, 8, 15, 19, 26, 30, 37, 45, and 49 are amended, no claims are canceled, and no claims are added; as a result, claims 1-41, and 45-54 remain pending in this application.

§102 Rejection of the Claims

Claims 1-4, 8-18, and 26-29 were rejected under 35 USC § 102(b) as being anticipated by Cowles (U.S. Patent No. 5,940,315). Applicant respectfully traverses the rejection for at least the following reasons. The response to Applicant's arguments states that Cowles teaches a single array that is the same as a memory bank in Cowles.

Cowles appears to show multiple memory arrays 20, 21, etc. Each array in Cowles appears to include wordlines. Cowles also appears to show straps 110, 111, etc. that bypass entire wordlines in selected arrays. However, Cowles does not show a strapping line of lower resistance than the wordlines coupled to a single continuous wordline in a single array wherein the strapping line bypasses only a portion in a middle region between a first and second end of the single continuous wordline. Applicant respectfully traverses the assertion that the memory bank 10 of Cowles is the same as a memory array 20, 21, etc. of Cowles. Cowles distinguishes these elements in its specification. For example, in column 1, lines 57-64 Cowles discusses the need for multiple arrays within a memory bank to maintain a consistent time constant.

In contrast, independent claims 1, 8, 15, and 26 as amended include strapping lines of lower resistance than the wordlines coupled to a single continuous wordline in a single array wherein the strapping line bypasses only a portion in a middle region between a first and second end of the single continuous wordline.

Because the Cowles reference does not show every element of Applicant's independent claims, a 35 USC § 102(b) rejection is not supported. Reconsideration and withdrawal of the rejection are respectfully requested with respect to Applicant's independent claims 1, 8, 15, and 26. Additionally, reconsideration and withdrawal of the rejection are respectfully requested with respect to the remaining claims that depend therefrom as depending on allowable base claims.

Title:

Claims 5-7, 19-25, 30-41, and 45-54 were rejected under 35 USC § 102(b) as being anticipated by Sukegawa et al. (U.S. Patent No. 5,841,688). Applicant respectfully traverses the rejection for at least the following reasons.

The response to Applicant's arguments states that Sukegawa does show a number of strapping devices (500, 502, 504) which bypass only portions of the wordlines in the single array of parallel wordlines (372, 374), wherein at least one portion of a wordlines is in a middle region between a first (580 in figure 5B) and second (584) end of the wordline.

Sukegawa appears to show a number of electrically separate wordline portions 536, 538, 540, etc. Sukegawa also appears to show a single wordline strap that is made up of a number of electrically connected segments 500, 508, 502, etc.. The single composite wordline strap of Sukegawa appears to be coupled through a single channel 528, 530, 532, etc. to separate wordline portions 536, 538, 540 etc.. Sukegawa does not show a strapping line of lower resistance than the wordlines coupled to a single continuous wordline in a single array wherein the strapping line bypasses only a portion in a middle region between a first and second end of the single continuous wordline.

In contrast, independent claims 5, 19, 30, 37, 45, and 49 as amended include strapping lines of lower resistance than the wordlines coupled to a single continuous wordline in a single array wherein the strapping line bypasses only a portion in a middle region between a first and second end of the single continuous wordline.

Because the Sukegawa reference does not show every element of Applicant's independent claims, a 35 USC § 102(b) rejection is not supported. Reconsideration and withdrawal of the rejection are respectfully requested with respect to Applicant's independent claims 5, 19, 30, 37, 45, and 49. Additionally, reconsideration and withdrawal of the rejection are respectfully requested with respect to the remaining claims that depend therefrom as depending on allowable base claims.

Serial Number: 09/808,750 Filing Date: March 15, 2001

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CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6944 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop AF, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this day of July, 2004.

Name Signature